

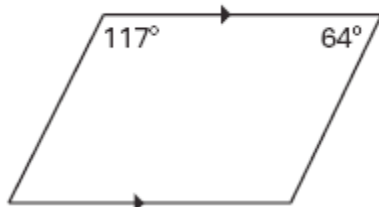
Pre-AP Geometry Date_____ 6.2 Assignment Page 1
Properties of Parallelograms (pp 330-333)

Omit 2, 27, 28, 30, 34, 35

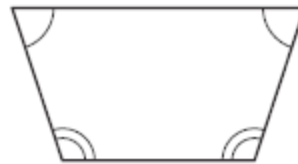
1. What is your name?

Decide whether the figure is a parallelogram. If it is not, explain why not.

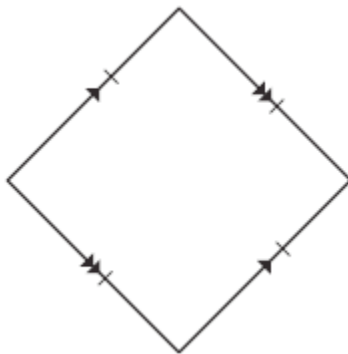
2.



3.



4.



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 Properties of Parallelograms (pp 330-333)

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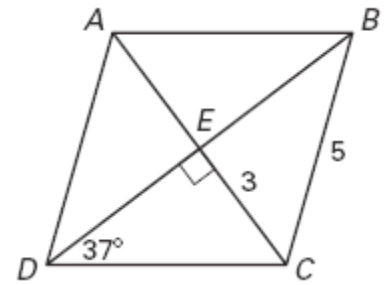
Use the diagram of parallelogram to answer questions

5-15. $\overline{AC} \perp \overline{BD}$. Find each measure.

5. AE

6. EB

7. AB



8. $m\angle DBA$

9. $m\angle ACD$

10. Perimeter of parallelogram ABCD

11. AD

12. DB

13. Perimeter of $\triangle AEB$

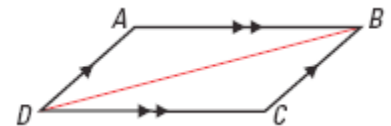
14. $m\angle DEC$

15. $m\angle CAB$

16. Complete the proof of "If a quadrilateral is a parallelogram, the its opposite angles are congruent."

Given: ABCD is a \square .

Prove: $\angle A \cong \angle C$
 $\angle B \cong \angle D$



Opposite sides of a parallelogram are congruent, so _____

_____ and _____. By the Reflexive Property of Congruence, _____.

$\triangle ABD \cong \triangle CDB$ because of the _____ Congruence Postulate. Because _____

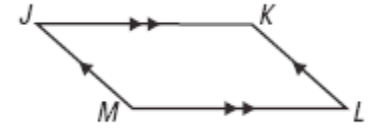
parts of congruent triangles are congruent, $\angle A \cong \angle C$. To prove that $\angle B \cong \angle D$, , draw

_____ and use the same reasoning.

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17. Complete the two column proof of "If a quadrilateral is a parallelogram, then its adjacent angles are supplementary."



Given: JKLM is a parallelogram is a \square .

Prove: $\angle J$ & $\angle K$ are supplementary.

Statements	Reasons
	Given
$m\angle J = m\angle L$ $m\angle K = m\angle M$	
$m\angle J + m\angle L + m\angle K + m\angle M = \underline{\hspace{2cm}}$	Sum of the measures of interior angles of a quadrilateral is 360° .
$m\angle J + m\angle J + m\angle K + m\angle K = 360^\circ$	
$2(\underline{\hspace{1cm}} + \underline{\hspace{1cm}}) = 360^\circ$	Combine like terms.
$m\angle J + m\angle K = 180^\circ$.	
$\angle J$ & $\angle K$ are supplementary.	Property of equality.



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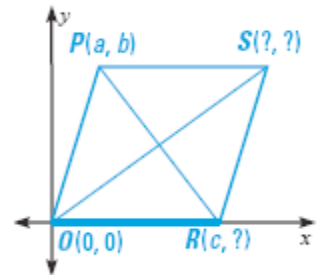
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Complete the coordinate proof of “If a quadrilateral is a parallelogram, then the diagonals bisect each other” in questions 18-22.

Given $PQRS$ is a \square .

Prove: \overline{PR} & \overline{QS} bisect each other.

Plan for proof: Find the coordinates of the midpoints of the diagonals of $\square PQRS$ and show that they are the same.



18. Point R is on the x-axis, and the length of \overline{OR} is c units. What are the coordinates of point R?

19. The length of \overline{PS} is also c units, and \overline{PS} is horizontal, What are the coordinates of points S?

20. What are the coordinates of the midpoint of \overline{PR} ?

21. What are the coordinates of \overline{OS} ?

22. How do you know that \overline{PR} & \overline{QS} bisect each other?



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 Properties of Parallelograms (pp 330-333)

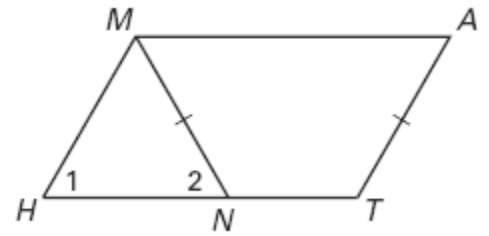
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Write a two column or paragraph proof.

Given: $\square MATH$

23. $\overline{MN} \cong \overline{AT}$

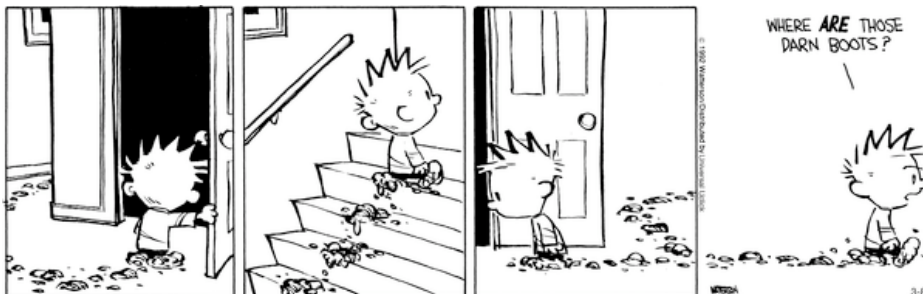
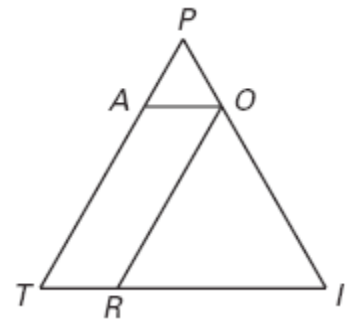
Prove: $\angle 1 \cong \angle 2$



Given: $\square ATRO$

24. $\overline{PT} \cong \overline{IP}$

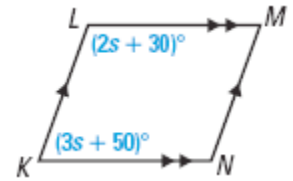
Prove: $\angle I \cong \angle AOR$



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25. _____ In $\square KLMN$, what is the value of s ?

- A. 5
- B. 20
- C. 40
- D. 52
- E. 70



26. _____ In $\square ABCD$, point E is the intersection of the diagonals. Which of the following is **not** necessarily true?

- A. $AB = CD$
- B. $AC = BD$
- C. $AE = CE$
- D. $AD = BD$
- E. $DE = BE$

Review.

Use the Distance Formula to find AB . (Chapter 1 Section 3)

27. $A(2, 1)$ & $B(6, 9)$

28. $A(-4, 2)$ & $B(2, -1)$

29. $A(-8, -4)$ & $B(-1, -3)$

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Find the slope of \overline{AB} . (Chapter 3 Section 6)

30. A(2, 1) & B(6, 9)

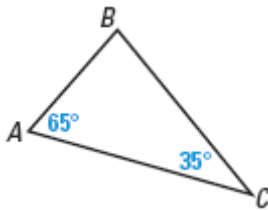
31. A(-4, 2) & B(2, -1)

32. A(-8, -4) & B(-1, -3)

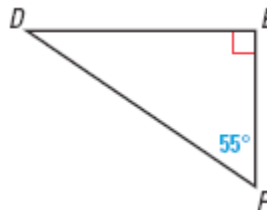
33. In a parking lot, two guidelines are painted so that they are both perpendicular to the line along the curb. Are the guidelines parallel? Explain why or why not. (Chapter 3 Section 5)

Name the shortest and longest sides of the triangle. Explain. (Chapter 5 Section 5)

34.



35.



36.

